

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

DRURY, THOMAS J.

Serial Number: 09/838,138

Filing Date: April 20, 2001

For: POLYVINYL ACETAL COMPOSITION
SKINLESS ROLLER BRUSH

Examiner Roche

Art Unit 1771

The Honorable Commissioner of
Patents and Trademarks
Washington, D.C. 20231

Sir:

DECLARATION OF THOMAS J. DRURY

COMES NOW, Thomas J. Drury, who avers and swears that the following statements are true to the best of his belief and knowledge:

1. That I am the inventor of the Polyvinyl Acetal Composition Skinless Roller Brush as disclosed in U.S. Patent number 09/838,138.
2. That I am the Chief Operating Officer of Hydrofera, LLC, the assignee of the subject application.
3. That the roller brush of the present invention was independently tested on a S3 300 Mirra-Mesa against two other roller brushes which are used commercially in the silicon wafer(chip) cleaning field.
4. That the party conducting the test was an independent nationally known company in the semi-conductor production area and that company has no affiliation with Hydrofera, LLC or Thomas J. Drury.
5. That one of the roller brushes tested in the comparative testing was a roller brush produced

by Rippey (See Bahten Patent No. 6,076,662). Rippey had previously distributed the Kanebo brush (See the Tomita Patent Number 4,566,919). The inventive roller brush cleaned twice as well as the Rippey brush and their equivalent.

6. That the roller brush shown under the Cercone patent was introduced into the field several years ago but is not known as a commercial product for cleaning silicon wafers.

7. That in the other competitor roller brushes which are currently used in the industry to clean silicon wafers, a specific number of silicon wafer defects occur because of the composition of the roller brush, the engagement of the roller brush surface on the silicon wafer surface, the cleaning chemicals passing through or collecting in the roller brush or at its surface and the manufacture of semi-conductor silicon wafer.

8. That roller brushes of the present invention had a life span averaging double to the life span of the commercial roller brushes presently used in the marketplace (1 1/2 to 2 1/2).

9. That roller brushes of the present invention used significantly less chemicals and water (up to 70% but no less than 30%) to clean the surface of the silicon wafers than used by the commercial roller brushes presently used in the marketplace thus presenting a cost saving and safety to the environment.

10. That roller brushes of the present invention have the best particle removal rate.

11. That roller brushes produced under the present invention showed the totally surprising result that not only did they not have the normal defect rate of unusable silicon wafers incurred in the cleaning process. In other words, the cleaning not only had a zero defect rate but it cured other defects present in the manufacturing process.

12. That there is a significant savings to companies producing silicon wafers using the present

inventive roller brush which amounts to an annual savings of \$6,000.00 to \$10,000.00 per tool. A typical large manufacturer would have 500 or more tools.

13. That the halving of water and chemical usage, the doubling the effective use life of the roller and the minus defect cleaning rate represented extraordinary results which were unexpected.

14. That any one of the noted benefits of paragraph 13 above was a benefit that would have been a surprising or unexpected result.

15. That the independent tester was of the opinion that the particle removal rate of the brush of the present invention was impressive and showed better cleaning performance than any other brush he had used.

The undersigned declares that all facts and allegations contained in this declaration are true to the best of his knowledge; all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements and the like so made are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States code and that such willful false statements may jeopardize the validity of the application or document or any registration resulting therefrom.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Thomas J. Drury', written over a horizontal line.

Thomas J. Drury

Date: February 26, 2003